Article

Knowledge Integration and Organisational Performance of Data Analytics in the Family Business

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Abstract: This study addressed the connection between the organisational performance of data analytics and the elements that contribute to knowledge integration (KI) in family businesses under the scope of the knowledge-based view theory. The conceptual model was validated based on the responses of 135 directors of Chilean family firms by using a partial least squares–structural equation modeling (PLS-SEM) methodology. The results show a relationship between the three components of KI and their impact on the organisational performance of data analytics, in addition to the moderating effects of both the quality of information and the information alignment within the proposed model. Our findings contribute data analytics to the family business literature and support organisational management by encouraging cooperation and the sharing of information and expertise among family members.

Keywords: knowledge integration; family business; data analytics; organisational performance

1. Introduction

Data analytics has evolved into a strategic component for corporations since the start of 2010 [1]. It is possible that with businesses adopting data analytics, the quality of information and their organisational performance will increase [2,3]. Given the importance of knowledge, there is a significant body of literature on knowledge management processes that address issues such as the acquisition, creation, exchange, transfer, and integration of knowledge as well as various aspects of business performance [4,5]. The quality of data analytics information generates further knowledge [6].

Family business and data analytics is a promising area with little existing literature exploring this relationship. In addition to the scarce family business research, there is a notable lack of studies conducted in Latin America, particularly in Chile. In this setting, the pursuit of specialized knowledge has become a corporate priority to continuously improve company performance [7]. No one individual can possess all the skills necessary to transform data into knowledge. Instead, to bring about this transformation, individuals in specialized jobs collaborate [8]. As a result, particularly within the context of data analytics, we concentrated on knowledge integration (KI), as it is a crucial knowledge management process that can provide an ongoing competitive advantage [6,9]. KI is the coordinated use of each person's unique expertise so that the company can profit from the complementarity of that expertise [10].

To utilize specialized knowledge and improve organisational performance, KI was identified as a crucial organisational element [4]. However, there is limited contemporary literature, and therefore minimal progress in comprehending the articulation around the family history of KI between family members [11]. KI is a function of the degree of shared

knowledge among organisational members [12]. Up until now, this has been described as a second-order model [10,11].

Therefore, and given that the KI is a determining factor in the organisational performance of data analytics, this study focused on analysing the articulation of the antecedents that make up the KI in the family business. In order to achieve these aims, the main aim of this research was to establish the configuration of the KI factors that determine the organisational performance of the family business, where the quality of the information and the information alignment play fundamental roles. Consequently, an explanatory model, based on the knowledge-based view (KBV) theory, family business literature, and data analytics, was proposed with the configuration of the KI antecedents used as determinants of the organisational performance of data analytics.

Therefore, the primary contribution of this study is the understanding of the elements of the KI, particularly those related to data analytics, that affect organisational performance through the development of long-term competitive advantages [13], the adaptation of their capabilities to environmental changes [14,15], and the creation of value over time. As a response to the scant literature on the mechanisms by which knowledge can be assimilated, this research aimed to fill the gap identified by previous research [10]. Additionally, it addressed the void between analytical skills and business performance [16].

This paper is organised as follows. In this section, we continue with the literature review to introduce our conceptual framework and justify our hypotheses. In Section 2, we used a partial least squares–structural equation modeling (PLS-SEM) methodology to validate our research model considering a sample of 135 directors of Chilean family businesses. The results, and hypotheses testing are shown in Section 3. In Section 4, we discuss our findings, including managerial implications. Finally, conclusions are provided in Section 5, where theoretical and practical contributions, the study's limitations, and future lines of research are addressed.

1.1. Knowledge-Based View Organisational Performance Theory

The conceptual model proposed is graphically summarised in Figure 1. The KBV theory, which allows knowledge to be recognised as a primary resource, is the first argument in the reasoning process. The many components of the KI and their impact on organisational performance are then justified using family business literature and data analytics, with the quality and alignment of the information being crucial in the final analysis.
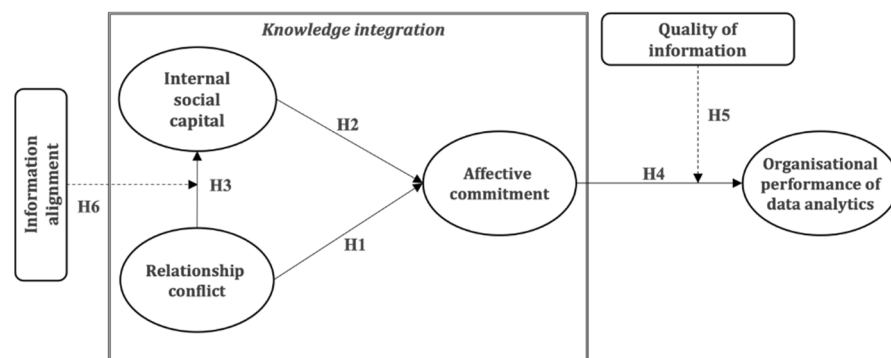
Figure 1. Conceptual model based on Chirico and Salvato [11].

According to the KBV, knowledge serves as the main resource for the development of new values, heterogeneity, and competitive advantage [17]. The key principle of the KBV theory is that the knowledge integration is the essence of organisational capability [12]. It therefore suggests that the application of the learned information should be the primary responsibility of the enterprise, leading to the creation of new knowledge. Previous research asserted that the person is the primary force behind knowledge creation [18]; yet most authors emphasised the fact that the formation of new knowledge is of a collaborative

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nature [15,19]. In this manner, the family business's method of integrating expertise is uniquely created. The closeness of family members and their ties, as well as their shared history and language, promote communication and teamwork, facilitating the sharing of knowledge and its combination and integration [20].

The specific mechanisms put forth in the literature as predictors of the KI process [10,11,21] are based on the work of Grant [12]. Since the determinants of all models are identical, this study applied the mechanism proposed by Chirico and Salvato [11] without compromising any of the models. This final mechanism posits the following three factors that influence KI: (a) internal social capital (ISC), represented by the family network, its norms, and mutual trust, where information sharing is encouraged and the recombination of family members' specialised knowledge is promoted [11] including the degree to which family members share the same corporate vision; (b) the willingness of family members to share and integrate their knowledge in the business which is represented by affective commitment (AC), known as a joint mental model that binds an individual to a course of group action relevant to the achievement of an objective [22]; and (c) relationship conflict (RC), which appears when there are interpersonal incompatibilities between group members, typically including tension, animosity, and annoyance among its members [22,23].

1.2. Knowledge Integration in the Family Business

The goal of KI is the adaptive adjustment of organisational practises that result from the confrontation of concepts and issues and the subsequent acknowledgment of the necessity for organisational change [15]. According to Grant [12], KI needs to have the following three qualities to be effective and to act as a source of long-term competitive advantage: a level of common knowledge, frequency of job completion, and a framework. By having a shared language, set of social norms, and organisational culture, for instance, people can communicate and comprehend one another more easily. Members can incorporate their specialised knowledge into routines due to the frequency of task execution, which translates into a system of signals and meanings that members acquire via repetition and improvement. The framework suggests that to carry out such a fusion of knowledge, communication between the members must be reduced.

A specific setting for the KI process to occur in a family business is provided by the overlapping of the family and business social systems. ISC, AC, and RC are specific variables that can affect this process in the family business [10–12,21].

Initial research shows that ISC has a good impact on KI [11]. Social capital makes it easier to access a variety of information sources and enhances the quality, relevance, and timeliness of information because the dynamics of KI are heavily influenced by the social context that exists within an organisation [24,25]. The effective sharing and pooling of knowledge is one of the organisational competencies that is most improved by social capital, where social interactions and strong affective attachments provide the informal structure for the effective flow of information [26]. In this regard, the family business structure, which is founded on intimate interpersonal connection and mutual trust, supports the creation of strong social bonds while also allowing family members to readily combine their specialised knowledge and progress action [11].

On the other hand, family businesses with strong emotional ties between family members and the company are more adaptable than those businesses where such ties are irrelevant [27]. The ability for the organisation to quickly adapt to changes, handle new client demands, accept emerging technology, or establish and define new markets is shaped by an optimal KI process [28]. According to [29], AC affects group interaction. To achieve organisational objectives, this commitment motivates employees to work together, complete duties as allocated, and make the required adjustments to the best of their abilities [29,30]. AC is therefore considered to be one of the most important variables fostering change and encouraging KI among organisation members [31,32].

RC serves as a barrier to productivity since it causes tension, annoyance, suspicions, and resentment among the organisation's members [11]. These feelings are exacerbated by

the closeness and sentiments that exist among family members, which weakens the group's potential for cooperation and reduces the effectiveness and efficiency of the organisation while preventing the integration of individual knowledge [33]. As a result, family members fight among themselves rather than benefiting from using their knowledge. This results in a lack of willingness on the side of the family members to share information about the company, which restricts the growth and profitability of the family business [11]. Conversely, family businesses that encourage knowledge sharing tend to be more innovative and effective [34].

1.3. Literature Review and Hypotheses Development

This study synthesised past studies to suggest a research model that evaluates the variables that affect KI and have an impact on the organisational performance of data analytics (Figure 1). The prior literature serves as the source for each of the suggested variables and relationships [10–12,16,35], which are fully developed in this section.

1.3.1. Relationship Conflict and Affective Commitment in the Family Business

A lack of formalised systems and structures as well as the family's predominance in establishing norms within family businesses fosters an environment that is conducive to conflict [36]. This can manifest in a variety of ways inside organisations, including disagreements over the details of the task at hand, process conflicts resulting from a lack of agreement over how to complete the task, and interpersonal conflicts brought on by emotional incompatibilities among group members [33]. Interpersonal relationships tend to be a major source of conflict in family businesses, as do marital disagreements, sibling rivalry, the division of property among family members [11,37], the lack of alignment between family and business interests, legal disputes, and conflicts over succession [38]. Negative feelings lead to suspicion and resentment, which weaken the mutual understanding between people and lead to conflict in relationships [23].

In a family business, the family and the company are interdependent; this interdependence becomes quite apparent when there is a problem in the relationships [39]. The family is the foundation of the business, with family members connected by strong emotional ties [40]. This allows for the family and the business to be intertwined, causing emotions to be frequently unavoidable [41]. According to research, family dynamics change as each generation joins the business and as the property is distributed, and as family interactions become more complicated [42,43], which has an impact on how the family members behave and their level of emotional commitment. As a result, the presence of conflict in the relationships between family members affects personal beliefs and support for the organisation's goals and vision, as well as the desire to contribute to the organisation and have a relationship with it.

Therefore, AC in the context of family businesses can be seen as a driving force that propels family members to act [11]. This is because one of the distinguishing characteristics of family businesses is that family members are recognised for their strong commitment to the business and their continuity across generations [11]. Strongly committed family members may be willing to go above and beyond their responsibilities and make additional efforts to benefit the business [30,44]. Nevertheless, the prevalence of unfavourable emotions among family members may jeopardise the AC and hinder them from utilising their individual abilities in the family business. According to the above, we hypothesised the following:

Hypothesis 1 (H1). *There is a negative relationship between RC and the family business's AC.*

1.3.2. Internal Social Capital and Affective Commitment in Family Businesses

Social capital is described as the existence of interpersonal connections that support activity, including connections between members of an organisation (ISC) and with third

parties (external social capital) [25,45]. The ISC of the family business was the subject of our study.

The literature suggests that one of the longest-lasting and most powerful forms of social capital is that which is developed within the family [45]. The social capital in a family business develops across time and generations and includes the family's values and norms. These characteristics suggest that it is particularly influenced by family members' emotional commitment to the company, providing the distinctive social and behavioural resources that result from this familial influence [26].

As a result, the family's AC to the business through ownership, management, and governance limits the transfer of and accumulation of family resources, which in turn affects the configuration of social capital in family businesses. The transmission of family resources to the business was acknowledged in the literature as emphasising the process of social capital, and the accumulation of such resources within the firm has been recognised as accentuating the essence of social capital [26,45,46].

The development of social capital in family businesses is accomplished through the interaction of the following four dynamic factors: stability, interaction, independence, and proximity [45]. Because social capital reflects the accumulation of surplus through time, stability is crucial [47]. Increased stability allows for a degree of continuity in social structures, which in turn enhances the clarity and visibility of mutual obligations as well as the growth of trust and cooperative norms [48–50]. Interdependence between the members of the business is necessary for the growth and protection of social capital; this capital erodes as members become more and more independent of one another [51]. Additionally, increased member interaction promotes the advancement and maintenance of reciprocal obligations within a social network [47]. The degree of interconnection between members' contacts determines how closely the members' behaviour norms will be observed [25,50]. More specifically, proximity refers to the presence of a sufficient level of friction between members such that compliance with rules is highly likely [52]. All these factors together have an impact on the flow of social capital into the family business.

Alternatively, from a content-focused perspective, social capital is seen as a collection of the following three dimensions: structural (i.e., actor-to-actor connections), cognitive (i.e., shared representations and interpretations that result in long-lasting connections), and relational (i.e., the nature and quality of connections) [26,46]. The research shows that the process associated with generating social capital is strongly connected to the structural elements of family business members, encouraging them to use their relationships and connections for the benefit of the family business [45]. Aspects that are facilitated by the cognitive dimension of social capital include shared resources, representations, interpretations, and signification systems between parties [46], which are also promoted by family norms, identification, and trust that make up the relational dimension of social capital. This ability to use family relationships for the benefit of the business exemplifies the idea of appropriation, which describes how relationships from one social structure may easily be transferred to another [52]. As a result, the flow of resources from the family that creates the family business's resource inventories serves as the foundation for its ISC.

As previously mentioned, the quality of networks and relationships, as well as ties to family and friends, strongly influence the ability to establish an emotional connection and AC to their company. The agreement includes a psychological state that leads to specific behaviours or orientations and establishes a connection or union between the individual and the organisation [53,54]. The literature makes a distinction between an AC (the desire to continue an action), a normative commitment (the perceived obligation to continue an action), and an ongoing commitment (the perceived cost of ceasing an action). The common use of the term "commitment" in family business literature is compatible with the definition of AC [30] and emphasises its significance for the survival and growth of family businesses [20].

The family becomes committed to the company's continued existence when they value the business and are willing to work together to secure its future [55]. These family values

are translated into family operating norms, which are supported and shared by family members. These familial preferences for involvement and commitment to the company frequently give shape to organisational norms [34]. As a result, it is very likely that a highly committed family will have an impact on both the internal structure of the company and the company itself [56]. These factors led to the following hypothesis:

Hypothesis 2 (H2). *There is a positive relationship between ISC and AC to the family business.*

1.3.3. The Role of Internal Social Capital as a Mediator between Relationship Conflict and Affective Commitment

As previously noted, the literature acknowledges that the transmission of familial resources to the business is carried out via the approach of social capital that is process-focused, as well as the accumulation of these resources within the business as a focus of social capital that is content-focused [26,46]. In actuality, the ISC functions as a catalyst that gathers and mobilises family resources. Advantageously, it will allow for the use of family influence as a tool to bolster the efforts of family members based on their feelings of loyalty, emotional commitment, and commitment to the goals of the family business.

Conflicts between family members' relationships present a constant risk to the business; these negative feelings serve as a barrier to productivity since they cause tension, annoyance, suspicion, and resentment among the organisation's members [11]. These feelings are made worse by the closeness and sentiments that exist among family members, which weakens the group's potential for cooperation and reduces the effectiveness and efficiency of the organisation while preventing the integration of individual knowledge [33]. As a result, family members fight among themselves rather than benefiting from using their knowledge. This results in a lack of willingness on the side of the family members to share information about the company, which restricts the growth and profitability of the family business [11]. Conversely, family businesses that support the development of an ISC based on a strong AC among family members may reduce the likelihood of RC and encourage knowledge sharing, and they tend to be more creative and effective [34].

To put it another way, in family businesses, interactions between family members may be characterised by a reciprocal altruism that links each family member's well-being to that of their other family members [37]. This reciprocity based on AC discourages favouritism and encourages family members to assert their own authority and consider the impact of their actions on the company [37]. As a result, it reduces the potential for RC and mitigates personal interests [39].

In particular, the quality of family relationships based on ISC favours respect between family members and well-being, thereby improving productivity. As a result, family members are better able to manage information, improve decision-making processes, support long-term goals, and maintain their wealth on a socioeconomic level [57]. Thus, the following hypothesis was formulated:

Hypothesis 3 (H3). *The relationship between RC and AC in family businesses is mediated by ISC.*

1.3.4. Affective Commitment and Organisational Performance of Data Analytics

Family firms that have strong emotional ties among family members to the company are more adaptable than those where such ties are not important [27]. The ability of the business to quickly adjust to changes, answer new customer demands, accept emerging technologies, or build and define new markets is shaped by this flexibility [28], which fosters an effective process of KI. This commitment to KI is crucial because it fosters the development of concepts and business models that have the potential to add value for both businesses and consumers [58]. A better decision-making process and greater understanding of the market's essential needs are made possible by the AC and KI, which in turn increases the value to the consumer [59,60].

AC affects group interaction [29]. This commitment encourages people to collaborate and carry out assigned tasks and necessary changes to the best of their abilities to achieve organisational goals [29,30]. In contrast, data analytics, which may extract hidden consumer information, provides knowledge to family members that will be integrated and translated into organisational performance [3,61]. As a result, the organisational performance of data analysis represents the value that the organisation and its customers achieve [58].

As a result, AC is seen as one of the most significant resources resulting from family influence over business and rooted in its ISC that has the potential to reduce RC, support change, and foster KI among organisational members [31,32]. Overall, the ability to effectively commit in the context of data analysis allows for greater organisational performance through product and service innovation. Following this rationale, we proposed the following hypothesis:

Hypothesis 4 (H4). *The organisational performance of data analytics is positively impacted by AC.*

1.3.5. The Moderating Impact of Quality of Information

Since knowledge, which is capable of producing ideas and models that could provide value for businesses and consumers, arises from the quality of information, it is a critical factor in how organisations make decisions [58,62]. The quality of information is an indicator that transforms into knowledge [63]. As such, the AC is represented by family members who engage in group action and volunteerism to share and incorporate their knowledge into the organisation [22].

The quality of information has attracted attention in the literature on data analytics [64,65], but less is known about how it affects the RC, AC and the organisational performance of data analytics. Previous studies [3] highlighted the significance of the quality of information by stating that it is a key precursor to organisational performance. Additionally, the quality of information helps businesses to understand the market's fundamental requirements [60].

The source of knowledge represents the quality of information [5]; as a result, the AC can assist organisations in achieving effectiveness through its role as a moderator of the quality of information. Therefore, based on [66], we suggested that, given that the quality of information is a strategic advantage, it depends on an organisation's ability to execute it and utilise other capabilities. This theory suggests that the quality of information affects the relationship between AC and the organisational performance of data analytics. As a result, we proposed that the AC's relationship with the organisational performance of data analytics is moderated by the quality of information, hence we proposed the following:

Hypothesis 5 (H5). *The relationship between AC and the organisational performance of data analysis will be moderated by the quality of information of the data analytics.*

1.3.6. The Moderating Effect of Information Alignment

The information alignment refers to an ongoing organisational effort focused on the reliability of information generated for decision making. This involves several goals, objectives, and initiatives aimed at achieving the high-quality information needs of each decision maker [67,68].

Businesses are successful in the age of data not just because they have increased or better quality data, but also because they have leadership teams that have clearly defined goals (data strategy) [65]. However, research on how to effectively align information continues to be limited, and knowledge regarding the impact of information alignment on the relationship between RC and ISC is essentially non-existent. There is growing interest in strategic alignment and the RC [69]. Employees need to be aware of their organisations' goals to avoid conflicts and to make their communication more effective [70]. In fact,

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alignment has been recognised as a means of locating the directors' shared understanding and preventing conflict [71].

In conclusion, the organisation of information demonstrates an organisational capability of assisting businesses in the integration of knowledge. As a result, the role of the information-alignment moderator may have an impact on the intensity of the RC toward the ISC (data strategy). As a result, given that information alignment is a strategic capability of the company, its ability to apply this advantage and utilise other capabilities depends on the company [66]. Accordingly, we proposed the following hypothesis:

Hypothesis 6 (H6). *The relationship between RC and ISC will be moderated by information alignment.*

2. Materials and Methods

2.1. Data Collection and Sample

Family business research is scarce in Latin America, particularly in Chile. There have been some efforts to characterise the structure of businesses in Chile, but these studies did not consider family ownership and family governance characteristics. Moreover, there are no studies that link family business with knowledge integration and performance. In this sense, this study sought to fill in such gap while also contributing to the knowledge of family businesses in Latin America. A sample of Chilean family firms was used to test our research model. We referred to the 5740-firm Directory of Companies and Directors of Chile from 2016–2017. We found 2157 prospective family businesses by using the information on their websites to determine whether the companies are family enterprises, whether their names contained surname references, or whether they mentioned their children or siblings. In any case, in addition to other questions that allow this nature to be validated ex post to the application of the survey, the survey included an explicit question about whether the company was a family business or not.

Based on prior research and family business scales, a questionnaire for family enterprises was organised and created. We conducted a pre-test with five family companies before gathering the primary data. To determine whether each participant could grasp the items and scales used in the questionnaire and test the viability of the data collection technique, the preliminary test involved each company completing its survey in front of the researchers. One of the most popular survey and market research platforms in the world, Qualtrics, was utilised to gather the data [72]. Between the months of October 2019 and March 2020, there were five separate emailing cycles.

Ultimately, we received 298 responses, which equates to a response rate of 13.8%. Of the responses received, 163 surveys were not sufficiently complete, so we eliminated these cases from our analysis. Therefore, we collected a total of 135 valid surveys. Table 1 shows the main characteristics of the sample in terms of age, number of employees, industry, older generation that is present in the company and whether the companies are internationalised. In relation to the size of the company, operationalised as number of employees, we found that most of the companies included in the sample were SMEs (74.2%). Consequently, we concluded that our sample is appropriate because the protection of family endowments related to non-economic objectives is more frequently identified in SMEs [73].

We contrasted the 135 businesses with the 163 that were excluded from the sample to evaluate non-response bias. We also looked for distinctions between the two sets of businesses in terms of age, personnel count, industry, older generation, and internationalisation. These key commonalities between the two business groupings were very comparable. Therefore, we concluded that a nonresponse bias is unlikely to be a substantial concern based on this commonality.

The subjective assessment of the key informants, however, was acknowledged as a potential limitation that may be related to common method bias [74]. We used Harman's individual factor test to overcome this constraint. We drew the conclusion that common method bias is not a problem because the data revealed that no single factor accounts for a

significant portion of the variance. Additionally, this study heeded the recommendation of scholars [75] to include straightforward questions in the survey and clearly separate the dependent variable from the independent ones to allay worries about construct validity resulting from reliance on a primary informant. The test provides significant evidence for the sample's high quality.

Table 1. Sample description.

Company's Age	n	% of Total	# of Employees	n	% Of Total
<10	4	3			
10–25	20	14.8	<10	8	5.9
26–50	62	45.9	10–50	48	35.6
51–75	29	21.5	51–250	44	32.6
76–100	11	8.1	>250	35	25.9
>100	9	6.7			
TOTAL	135	100	TOTAL	135	100
Industry			**Internationalisation**		
Manufacturing	80	59.3	Yes	35	25.9
Services	55	40.7	No	100	74.1
TOTAL	135	100	TOTAL	135	100

2.2. Variables and Measures

We used questions from earlier academic literature to measure the constructs suggested in the conceptual model. According to a 7-point Likert scale, we classified the responses from: 1 = "strongly disagree" to 7 = "completely agree." Table 2 shows a list of the dependent and independent variables' measurement scales.

Table 2. Measurement scales.

Constructs	Dimensions	Source	Items
Quality of information	Integrity	[76]	Contains complete information. They are presented without relevant gaps. They provide all the necessary information.
	Topicality		Provides the latest information. Provides up-to-date information. They always provide updated information.
	Format		They contain suitable formats. It is well designed. They are easy to understand.
	Precision		They provide correct information. They lack relevant errors. They provide accurate information.
Internal social capital		[77]	They maintain open communication with each other. They do not keep company information to themselves. They are willing to share information with each other. They take advantage of their family relationships to share information. They show great integrity in their relationships. They trust each other. When making decisions, they consider the feelings of others. They are committed to the objectives of the company. They share the vision and mission of the company. They see themselves as partners in shaping the overall decision-making of the company. They share what the future of the company should be.

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Table 2. *Cont.*

Constructs	Dimensions	Source	Items
Affective commitment		[22]	They find their work challenging and exciting. They are clear about what is expected of them in the company. They feel heard by senior management regarding the ideas they present. They trust that the family business does what it promises to do. They have a feeling of fairness regarding the remuneration they receive They participate in the decision-making process considering the work and the operating rules of the company.
Relationship conflict		[33]	They have personal problems. They have obvious personality conflicts. They have tension in relationships. They are frequently in disagreement with the opinions of the CEO (Executive Director). They have frequent conflicts, about the different proposals presented in the company. They have conflicts regarding the work that each member of the family does in the company. They have differences of opinion about the company.
Organisational performance of data analytics		[16]	Data analytics improved customer retention Data analytics enhanced sales growth. Data analytics improved profitability. Data analytics allowed us to enter other markets faster than the competition.
Information alignment		[16]	The plan is aligned with the information quality objectives. The plan contains measurable goals that support data quality. The plan has initiatives that support the quality of information. The plan is aligned with the expected performance objectives of the business. The plan contains quantifiable goals that support the expected performance of the business. The plan has initiatives that support the expected performance of the business. We prioritize investments in data analysis by the expected impact on business performance.

3. Results

To verify our proposed model, we employed a partial least squares–structural equation modeling (PLS-SEM) methodology that integrates exploratory and confirmatory factor analyses (EFA and CFA, respectively) [78,79]. PLS provides a substitute for covariance-based SEM and is especially appropriate when the data are skewed because it produces incredibly reliable model estimates [80]. PLS–SEM is increasingly used in family businesses as well as management, strategy, and marketing [81,82].

PLS–SEM stands out as an appropriate technique for researching family business phenomena [83]. There are several factors that make PLS–SEM suitable for this kind of research. (a) Firstly, it allows for the use of latent variables with indicators that are both

reflective and formative [84], (b) makes use of data assumptions of normality [85] which facilitates studies in small samples [86], and (c) adapts to the early stages of the theory's development by allowing for both exploratory and confirmatory research [87,88].

The outcomes of EFA, carried out in SPSS software version 25, are shown in Table 3. First, a correlation analysis was conducted for each construct to exclude any items with low values (r < ±0.30) or high values (r > ±0.90) to prevent any multicollinearity problems. The resulting determinant values were all bigger than 0.00001, ruling out multicollinearity [89]. The connections between the variables were further supported ($p < 0.001$) by Bartlett's sphericity test. Additionally, the Kaiser-Meyer-Olkin (KMO) measures showed results that were better than 0.7, which is regarded as favourable [90]. All the variables' anti-correlation matrix's diagonal element had values of more than 0.69, which is sufficient [91]. This phase deleted all items with communalities of less than 0.4. The model contained fewer than 50% non-redundant residuals with absolute values of greater than 0.05, which supports its decent fit [92]. Apart from two items, where the values were more than 0.6, the factor loadings exceeded 0.7, which is sufficient for scales that are still developing [85]. Items with loads of less than 0.6 were discarded. Only one-dimensional constructions were formed because of the dimension reduction method; initially, four basic constructs were multidimensional.

Table 3. EFA results.

Variable	KMO	Cumulative Variance
Organisational performance of data analytics	0.780	74.779%
Affective commitment	0.904	68.853%
Internal social capital	0.919	67.527%
Relationship conflict	0.870	71.383%
Quality of information	0.921	63.736%
Information alignment	0.821	69.801%

3.1. Measurement Model

After the EFA, the components and factors in the suggested model were validated using a CFA using SmartPLS software version 3.3.3. Multicollinearity was not a problem because all variance inflation factor (VIF) values were less than 5.0 [93]. The average variance extracted (AVE), Cronbach's alpha, composite reliability, and the constructs' reliability and validity were all employed. Table 4 displays the outcomes.

Table 4. Reliability and construct validity.

Variable	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Organisational performance of data analytics	0.880	0.926	0.806
Affective commitment	0.872	0.921	0.796
Internal social capital	0.870	0.920	0.793
Relationship conflict	0.931	0.948	0.784
Quality of information	0.940	0.949	0.676
Information alignment	0.899	0.930	0.768

All Cronbach's alpha values were greater than 0.8, which is satisfactory [94]. Additionally acceptable and larger than 0.8 are composite reliability values [95]. The AVE exceeded the suggested threshold of 0.5 [96]. Additionally, the items presented in Table 5 for the discriminant validity test passed the Fornell–Larcker test, which requires that the square root of the AVE be greater than any correlation between constructs. The standardized root

mean square residual (SRMR) was equal to 0.054 for the adjustment of the measurement model, meeting the requirement of SRMR > 1.0 [79]. Additionally, we used the ModelFit plugin of SPSS Amos software version 24.0.0 [97] to compare two popular SEM fit indexes; both outcomes were reliable. First, the confirmatory fit index (CFI) was 0.977, and greater than the suggested value of 0.95. Second, the root mean square error of approximation (RMSEA) was 0.040, which is lower than the cut-off value of 0.06. As a result, this evidence points to the suitability and fit of the measurement model.

Table 5. Discriminant validity.

Variable	(1)	(2)	(3)	(4)	(5)	(6)
(1) Information alignment	0.876					
(2) Quality of information	0.681	0.822				
(3) Internal social capital	0.306	0.209	0.891			
(4) Affective commitment	0.365	0.328	0.720	0.892		
(5) Relationship conflict	−0.228	−0.114	−0.442	−0.295	0.886	
(6) Organisational performance of data analytics	0.452	0.458	0.149	0.303	0.112	0.898

3.2. Structural Model

The estimated empirical model, for which SmartPLS software was utilised, is depicted in Figure 2. We were able to produce the standard error and t-values of the parameters using a bootstrapping test of 500 subsamples.
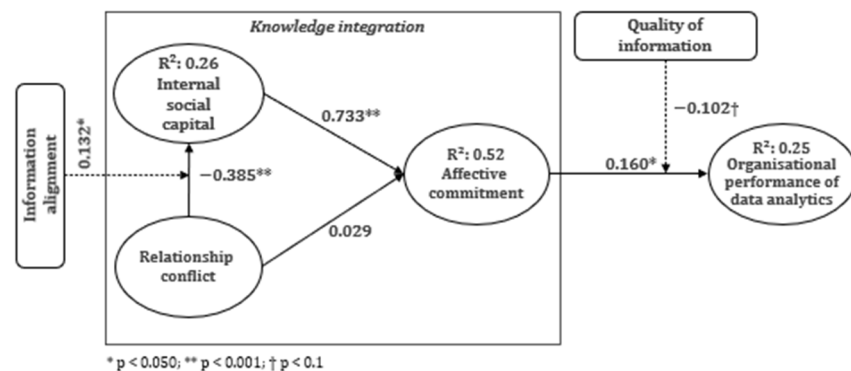
Figure 2. Empirical model.

To evaluate the structural model of the main model, we acquired the explained variance (R^2) of the dependent constructs and the route coefficients for each relationship, which are shown in Figure 2. The model presented good predictive potential because all its R^2 values were higher than the 0.1 cut-off value [98]. In addition, we assessed the path coefficients (β), with the consideration that the standardised path coefficients should reach at least a value of 0.2 to be regarded as significant [85]. In our example, all β of the primary model's values—aside from AC->Organisational performance of data analytics—exceed the value of 0.2. Therefore, we referred to previous studies [98], which stated that a reasonable index of explained variance in an endogenous construct by another latent variable can be explained by the absolute value of the result of multiplying β by the corresponding correlation coefficient between both variables, and that it must explain at least 1.5 percent of the variance in a predicted variable. In our example, 8.8 percent—above the minimum requirement [98]—explains the AC->Organisational performance of data analytics link. We also assessed the stability of the estimates provided by PLS using the bootstrapping technique; for this, we compared the standard deviation of the β of the original sample and the subsamples, concluding that there is not much of a difference between these two

sets of data, indicating that the estimate of the mean and standard deviation of the original sample is statistically stable [99].

We carried out a hierarchical regression analysis for the contrast testing of our hypotheses (Table 6). In the primary model, the variables were added hierarchically. The AC (Model 1) is shown first, followed by the ISC (Model 2), the RC (Model 3), and ultimately their interactions were included (Model 4).

Table 6. Hierarchical regression analysis without moderation.

Model	Hypothesis	Path	β	P
(1)	H4	Organisational performance of data analytics ← Affective Commitment	0.306	0.000
(2)	H4	Organisational performance of data analytics ← Affective Commitment	0.302	0.000
	H2	Affective Commitment ← Internal Social Capital	0.720	0.000
(3)	H4	Organisational performance of data analytics ← Affective Commitment	0.302	0.000
	H2	Affective Commitment ← Internal Social Capital	0.729	0.000
	H1	Affective Commitment ← Relationship Conflict	0.020	0.397
(4)	H4	Organisational performance of data analytics ← Affective Commitment	0.302	0.000
	H2	Affective Commitment ← Internal Social Capital	0.733	0.000
	H1	Affective Commitment ← Relationship Conflict	0.029	0.365
	H3	Internal Social Capital ← Relationship Conflict	−0.442	0.000

3.3. Interactive Analyses

The results from Model 4 suggest the presence of mediating effects in the model, even though they do not support H1 (the idea that there is a negative correlation between RC and AC in the family business). To support H2, the ISC of the family business served as a proxy for the AC. This finding supports the assertion of previous studies [55] that a family is committed to the company's perpetuation when members value the enterprise and are prepared to collaborate to ensure its survival. The organisational performance of data analytics is then influenced by AC; this means that there is a favourable and statistically significant relationship between the two variables, supporting hypothesis 4 which stated that there is a general desire to integrate knowledge [29], affecting the organisational performance of data analytics, and therefore the business vision [61].

A statistically significant positive relationship was detected between the two variables, supporting the hypothesis that the alignment of the data plan influences the quality of information. Managers are more likely to believe that data plans are aligned with corporate strategies if they hold this belief. This observation is in line with previous studies [100], where it was concluded that the alignment of the capacity to generate information with business is not a static state but rather a long-term, continuous maturation process to guarantee that information technology is used properly to facilitate or promote business strategies.

3.3.1. Mediation

To test our mediation hypotheses (H3), we employed the causal step approach (CSA) [101], as well as PLS–SEM, and Bootstrap confidence intervals as suggested by Hayes using the PROCESS macro software version 3.4 for SPSS [102]. PROCESS is a recognised modeling tool for estimating the direct and indirect effects in single and multiple mediator models [102]. The three measurement tests' results had statistically significant outcomes (see Table 7).

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Table 7. Mediation results.

Path	(1) CSA	(2) Indirect Effect	(3) Indirect Effect
a: Internal Social Capital ← Relationship Conflict	−0.442 ***		
b: Affective Commitment ← Internal Social Capital	0.732 ***	−0.324 *	−0.325 *
c: Affective Commitment ← Relationship Conflict	−0.295 ***		
c′: Affective Commitment ← Relationship Conflict	0.029		

(1) Causal step approach with SPSS, (2) PROCESS; (3) PLS-SEM; * $p < 0.050$; *** $p < 0.001$.

The mediation proposed by H3 was supported by the contrast tests of our hypothesis. These findings suggest that the relationship between AC and RC was explained by ISC with an indirect effect of −0.325*.

3.3.2. Moderation

We employed PLS–SEM to evaluate our moderation hypotheses (H5 and H6). With a 90% level of significance ($p < 0.10$), the quality of information moderator (β = −0.102) was found to be biased, supporting the existence of a moderating effect (H5) on the AC and organisational performance of data analytics. Parallel to this, the moderating impact (H6) on RC and ISC was supported by the information alignment moderator (β = 0.132), which was statistically significant with a *p*-value of 0.05.

Although it is acknowledged that high levels of quality of information tend to increase organisational performance, the results for H5 show that there were no significant differences between low and high levels of AC in terms of organisational performance of data analytics.

The results for H6 show that, between low and high levels of RC, the impact of conflict on ISC lessens when there is a high level of information alignment (Figure 3). In other words, the more the information is aligned, the more ISC is favoured by RC. Based on Akter et al. [16], we can explain this behaviour by stating that a better synchronization or alignment of information between group members and business strategies increases synergy between members of an organisation, reducing potential obstacles (cognitive, structural, and political) for the exchange of information.
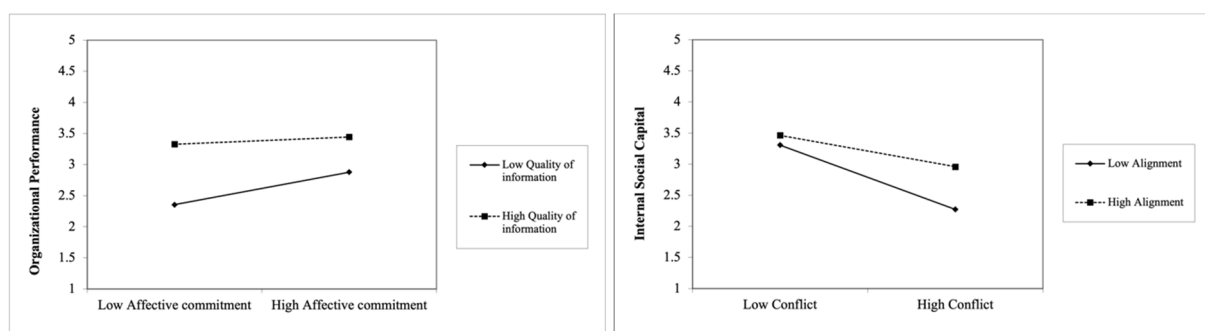
Figure 3. Moderation effects.

4. Discussion

Our study aimed to shed light on the elements that contribute to KI and, consequently, its connection to data-driven organisational success. Applying the KBV theory specifically, we investigated the interactions among the KI constructs (ISC, AC, and RC) that support the internalisation and integration of the company's knowledge into the family business [11]. Our findings show that the foundation for KI into the family business is ISC. ISC does, in fact, through its content and process approaches, from a positive point of view, generate the circumstances to benefit from family members' closeness and AC to the organisation, and it also motivates them to work together, mobilised by a common mental framework that is

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based on the AC that links them to the family and the company, and allows for reduced RC. ISC, which creates the conditions for family members to share their knowledge in a setting of trust, has a significant impact on the integration of information. This aims to ensure the survival of the business and its socio-emotional assets.

Our findings specifically show that the variables influencing KI exhibit varied behaviour. RC inhibits KI, whereas ISC and AC improve it according to earlier research [26,45]. In this sense, our results support H1 in the family business, and RC has a negative impact on AC. Interpersonal relationships tend to be an important source of conflict, and the interdependence of both the family and business systems makes conflict in relationships very evident. In this regard, the existence of strong affective links among family members might make emotional aspects typically inevitable [11,39]; when they manifest, these emotional aspects can alter the degree of commitment of family members to the business. H2 finds support as the family's involvement in the business through ownership, governance, and management, as well as the participating generations positively affect the ISC by providing the specific resources of behaviour derived from endowments and AC provided by family influence. Finally, the findings show that AC and RC are mediated by ISC. This finding is significant because it suggests that ISC may serve as a catalyst for the detrimental effects of RC by utilising the content and procedural resources that support relationships, communication, and AC among family members and the company. These findings corroborate H3 because they show that interpersonal connections and strong emotional bonds facilitate effective information sharing, improve family members' comprehension of one another, and lessen RC.

A family that is highly committed to the company is likely to have a significant impact on it as well, fostering KI and thereby bolstering organisational performance. Previous research [11,56] states that AC acts as an emotional force that binds family members to a course of action. Business users are those who benefit from and use knowledge, frequently from concealed information offered by data analytics [62]. In other words, the desire to integrate information determines how decisions are made and how significant business issues are solved, which leads to activities that provide a variety of economic values, both tangible and intangible. The integration of knowledge, mobilised by AC and combined with data analytics, allows enterprises to be managed based on facts rather than on the family business's intuition [103]. We focused on investigating organisational performance based on data analytics from the viewpoint of the family business. The literature acknowledged that family firms, particularly those that are in first family generations, are hesitant to employ formal management tools (in this case, data strategies). However, we note that the study's findings only help to confirm Grant's [12] argument on the company's principal goal and role in KI (the application of acquired knowledge). In this approach, the data-supported findings support H4 since they show a positive correlation between AC and organisational performance of data analytics.

Family members' AC provides emotional support, which motivates them to modify their behaviour toward the desired goals and exert their best effort to meet organisational goals. Knowledge management capabilities are linked to business effectiveness, which is reflected in the company through the extent to which the organisation is successful in capturing greater market shares, better results, greater growth, and innovation relative to its rivals [11,104]. Our findings support the idea that efficient knowledge management that fosters capacity development may contribute to organisational performance, which is also supported by previous authors [104,105]. In this study, we acknowledged the heterogeneity of family businesses and that the links under study—specifically those that affect behaviour and performance—are complicated and likely regulated by several factors [106,107].

First, in line with Erevelles et al. [61], we incorporated the quality of information as a factor that facilitates decision making by enhancing the organisational performance of data analytics and, as a result, moves the company towards organisational goals, providing support for H5. This is because the quality of information leads to beneficial commercial action. The family's attitude toward using formal management methods allows the business

to surmount new and challenging goals. Firms view the analytical process as a tool to increase operational effectiveness, create new income streams, and gain a competitive edge over competing rival [108]. In this situation, family members' emotional ties to the business encourage them to strive for success and use formal management techniques that represent the road to professionalisation in order to pass the business down through family generations.

Second, our findings suggest that RC may be lessened by improving the standard of the networks and linkages found within ISC that encourage family members to communicate with one another. Strategic alignment allows members to comprehend the advantages and downsides of this information strategy as well as other business strategies [58]. There are metrics in which analytical strategies and knowledge are matched with the strategy organisation overview, which helps family connections in the face of conflict [65,109]. Our findings are significant because research has shown that RC is a negative factor in family businesses. Strong and frequently negative family emotions contribute to factors that degrade the environment and performance, encouraging family members to argue instead of utilising their knowledge collaboratively. In this way, H6 is supported. Information sharing, by creating information and communication channels, and offering instructions for action, develops an environment of trust and connects family members toward the pursuit of similar goals.

Our findings also have implications for family business managers. In this regard, managers must be aware of the factors that influence and are connected to the process of KI in a data analytics setting to foster an environment that encourages cooperation and the sharing of knowledge and information among family business members. To achieve the appropriate motivation and management tool (data strategy), managers must be aware and understand how the family transmits unique resources to the business. This will allow the process to be carried out in favour of organisational performance. In this way, a culture of trust and AC encourages communication between members of the family and the business, minimising unavoidable RC, particularly that involving family members. To reap the rewards of the KI process, these components must be managed as effectively as possible. Additionally, managers of family businesses must keep in mind that data analytics has evolved into a strategic component of organisations, where the KI is a crucial process that calls for their special attention as a source of long-term competitive advantage. The manager's responsibility is to see to it that the various family generations deepen their bonds within the context of the business. Only then will family members be able to adopt the organisational vision and values throughout the generations, ensuring the survival of the family business.

In a complementary manner to the research, in the European context under the coronavirus pandemic, a series of variables within the scope of family businesses were observed that must be taken into account, such as the unsustainability of salary and productivity, which were predictably accelerated during the sanitary emergency [110] causing direct changes in the market that produced an increase in the intensity of competitiveness; this situation is configured as an opportunity for innovation that is reflected in the application of new technologies, increasing the expenditure in R&D [111]. In particular, within credit institutions, favoring the SME sector [112] among other phenomena could also be reviewed in future research.

5. Conclusions

This study offered some additions to family business research. Firstly, and in line with Chirico and Salvato's [11] suggestions, we broadened the discussion of the KI process in the family business by presenting quantitative data about the link between the various components of KI. Second, we applied data analytics to the study of family business, a topic with a lot of potential but little research to date. The idea of alignment stands out in this regard as a component that might lessen the presence of RC. Moreover, the study of family businesses in Chile represents an underdeveloped subject. Considering the study of

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the factors that constitute KI and its effect on organisational performance of data analytics, as well as the findings on the moderating role of the quality of information and information alignment, we can corroborate, based on Whetten [113], that this research constitutes a theoretical contribution to the family business literature.

Although we acknowledge that this study has certain inherent limitations, our research expands the quantitative analysis of the KI process in the family business surrounding data analytics and has significant implications for theory and practise. Firstly, cross-sectional research poses several challenges when attempting to measure phenomena across time. Since this form of study is static and cannot demonstrate causal linkages, it is hard to fully understand the dynamic nature and impacts of the KI process. Secondly, surveys were used to collect data. It was required to use this kind of instrument due to the design of the variables and the lack of suitable databases. Thirdly, acquiring data based on the opinion of a major informant, which might introduce bias is another methodological constraint. Finally, even though the PLS methodology is flexible and does not establish causal relationships between independent and dependent variables, rather only predictability-based relationships given the presence of formative and reflective indicators, at the current stage of development of the theory and the complexity of the model, this methodology proved to be appropriate for assessment in our study.

This research generated several interesting research directions. First and foremost, efforts could be focused on creating studies that can pinpoint the behaviour and effects of KI factors across time and capture their dynamic nature, as may be the case, for instance, when using the case method. Moreover, future studies can focus on assessing our model in different settings and cultures, which would help to contextualise and document results accordingly. Similar to the inclusion of business management support tools, future research might focus on examining additional factors (such as administrative support, data usage culture, managerial capability, and intention to use technology) that may have an influence on the behaviour of the family business. Finally, the outcomes of this research might well be evaluated and contrasted in various situations, settings, and cultures in future research.

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